



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: RICHARD W. TSCHANTZ  
FOR: FOLD-OVER CONVEYOR BELT  
SERIAL NO. 10/656,458  
FILING DATE: 09/05/03  
EXAMINER: Joseph A. Dillon Jr.  
ART UNIT: 3651  
CONFIRMATION NO.: 8433  
LAST OFFICE ACTION: October 6, 2004  
ATTORNEY DOCKET NO. 1054-AB

DECLARATION UNDER 37 CFR 1.132

Assistant Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 222313-1450

I, William H. Tschantz, declare that I am a consultant of Imperial Technologies, Inc.;

I further declare that I am the father of Richard W. Tschantz, the inventor of the subject matter of the instant application;

I further declare that I have worked alongside my son in the design and manufacture of conveyor belt systems since 1976;

I further declare that I am the inventor of the Multifold conveyor belt covered by U.S. Patent No. 5,107,983, issued April 28, 1992;

I further declare that I am the patentee with respect to a number of other patents

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relating to conveyor belts and conveyor systems, namely US patent numbers 5,031,753; 4,760,913; 4,760,913 and 4,392,566;

I further declare that I have designed, manufactured and installed rubber conveyor belt systems as early as 1981;

In 1982, I was working in conjunction with The Goodyear Tire and Rubber Company (Goodyear) of Akron, Ohio on developing a new folding belt. Goodyear was to manufacture the final product and I worked closely with their engineers. We found that when flap portions of the belt were folded over the medial portion of the belt, the hinge area of the fold would rapidly deteriorate and fatigue in that area off the belt. After some investigation, Goodyear determined that this early deterioration was caused by the rubber in the upper surface of the belt being excessively compressed. They determined that the rubber could not hold up under such large compressive forces and this resulted in cracks forming in the lower surface of the belt and ultimately resulted in breakage of the hinge. The researchers at Goodyear conceived the idea of cutting a single groove into the uppermost surface of the belt at the fold to remove excess rubber from within the fold and thereby reduce the compression of the rubber in that area of the belt. Goodyear obtained a patent for such a grooved belt.

It was still found, however, that the rubber at the fold cracked too easily haven installed the belt on actual applications. At that time, in 1991, the rubber in the lowermost surface of the belt was softer and less durable than the rubber used for the load-carrying surface. It was therefore believed, by both myself and the engineers at Goodyear, that the lowermost surface of the belt was too delicate to alter.

I conceived the idea of cutting a plurality of parallel grooves into the load-carrying surface of the conveyor belt. After extensive testing, this series of multiple grooves was found to allow the flap portions of the belt to be folded over the medial portion of the belt without the hinge area breaking down rapidly.

In 2002, my son, who was attempting to improve my Multifold belt, proposed

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cutting grooves in the lowermost surface of the belt because he was finding the load, specifically sugar, was getting trapped in the upper surface grooves. I advised him at the time that this could not be done because the lowermost layer of the belt was too delicate to work with and tended to crack easily if strips of rubber were not removed from the upper layer of the belt. I advised him that Goodyear's engineers had also determined that the only way a hinge area could be successfully made was to groove the upper surface of the belt. I also advised him that grooving the lower surface of the hinge areas of a Multifold belt would not address the problems caused by the excess compression of the rubber in the fold of the upper surface and that it would therefore not work.

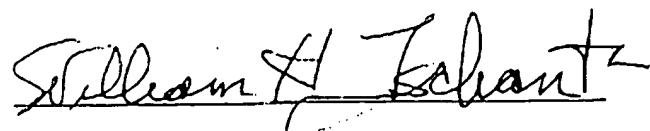
I hereby declare that, contrary to my advice, my son grooved the bottom surface of a conveyor belt using the multiple groove design. I was extremely surprised to find that the fold area did not rapidly crack and deteriorate. This result was contrary to all expectations. After conducting tests on the multiple bottom-grooved belts, I was even more surprised to find that a bottom-grooved belt does not decay as rapidly at the hinge area as does an upper surface grooved belt and that the bottom-grooved belts last as long as top grooved belts.

I further declare that I am one skilled in the art of designing and manufacturing conveyor belt systems and I would not have found grooving the bottom surface of a conveyor belt to be obvious, in fact, it went completely against everything I knew at the time working with the Goodyear engineers about creating hinge areas on conveyor belts.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful, false statements so made are punishable by fine or imprisonment, or both, under Section 1001 Title 18 of the U.S. Code, and that willful, false statements may jeopardize the

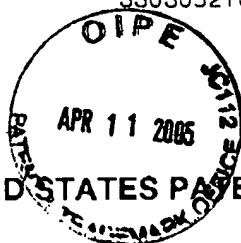
validity of this registration.

Executed at Imperial Technologies, North Canton, Ohio this 5th day of April, 2005.



William H. Tschantz

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DECLARATION UNDER 37 CFR 1.132

Assistant Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 222313-1450

I, Richard W. Tschantz, declare that I am an employee of Imperial Technologies, Inc.;

I hereby declare that I am the inventor of the fold-over conveyor belt covered by U.S. Patent No. 6,540,069, issued April 1, 2003; and that I am also the inventor of the subject matter of the instant application;

I further declare that I am the son of William H. Tschantz, inventor of the device covered by U.S. Patent Number 5,107,983 issued April 28, 1992;

I further declare that I have worked alongside my father since 1976 in the development and manufacture of a wide range of conveyor belts for various load-

transportation needs;

I further declare that I am one skilled in the art of designing and manufacturing conveyor belt systems and I would not have found grooving the bottom surface of the belt to be obvious.

I further declare that at the time I conceived and made the instant invention, i.e. prior to September 5, 2003, it was commonly believed that a conveyor belt having grooves in its bottom surface would crack if an area of the belt were folded over the medial portion of the belt;

I further declare that between 1994 and 2003, I was working on the development of an improved fold-over conveyor belt for transporting loads such as sugar. One of the problems experienced with conveying products such as sugar on upper-surface grooved belts is that the load tends to gravitate into the grooves. The granules of sugar become trapped in the grooves and interfere when the flaps of the belt are folded over the medial portion thereof. This leads to a loss of function in the hinge area of the belt and wiping the belt to remove entrained material could not be done with conventional wiping methods.

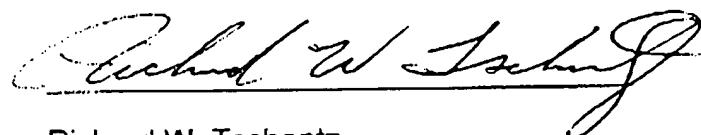
I was working on finding a different way to manufacture the hinge area of the belt. I suggested to my father that we groove the belt in its lower surface. My father advised me that this was improbable because the rubber in the hinge area of the upper surface would then be in compression and the rubber would crack and the pulley cover surface would be in tension and deteriorate rapidly. My father advised me that he had worked in conjunction with The Goodyear Tire and Rubber Company of Akron, Ohio, to develop fold over belts and that he and Goodyear had concluded a hinge could only be made by grooving the upper surface of the belt. Despite his protestations and arguments, I decided to groove the bottom surface of a belt and put it into commission.

I declare that I found, to my surprise and that of my father and of Goodyear's surprise that the bottom-grooved fold-over belt did not crack when folded. Furthermore,

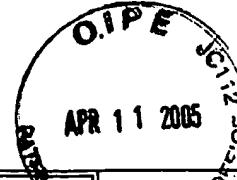
after conducting various tests we have concluded that a bottom-grooved conveyor belt does not indicate fatigue at the hinge area as previously indicated. I further declare that I believe that the type of rubber and adhesion to the plies used in conveyor belts has changed in recent years and may be this change in the type of rubber used in the upper and lower surfaces of the belts that may have contributed to the unexpected results found in our bottom-grooved belt.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful, false statements so made are punishable by fine or imprisonment, or both, under Section 1001 Title 18 of the U.S. Code, and that willful, false statements may jeopardize the validity of this registration.

Executed at Imperial Technologies, N. Canton Office this 30 day of March, 2005



Richard W. Tschantz



**CERTIFICATE OF MAILING BY FIRST CLASS MAIL (37 CFR 1.8)**

Docket No.

Applicant(s): Richard W. Tschantz		1054-AB	
Serial No.	Filing Date	Examiner	Group Art Unit
10/656,458	9/5/2003	Dillon Jr., Joseph A.	3651
Invention: <b>FOLD-OVER CONVEYOR BELT</b>			

I hereby certify that the following correspondence:

Amendment A including 2 Declarations

is being deposited with the United States Postal Service as first class mail in an envelope addressed to:  
Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

April 6, 2005

(Date)

Karina A. Butler

(Typed or Printed Name of Person Mailing Correspondence)

Karina A. Butler

(Signature of Person Mailing Correspondence)